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ABSTRACT

This student module on OSHA (Occupational Safety and Health Act) training programs is one of 50 modules concerned with job safety and health. This module provides a list of OSHA training requirements and describes OSHA training programs and other safety organizations' programs. Following the introduction, 11 objectives (each keyed to a page in the text) the student is expected to accomplish are listed (e.g., Describe the training services available from the National Safety Council). Then each objective is taught in detail, sometimes accompanied by illustrations. Learning activities are included. A list of references and answers to learning activities complete the module. (CT)

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SAFETY AND HEALTH

OSHA TRAINING PROGRAMS

MODULE SH-48

U.S. DEPARTMENT OF EDUCATION
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INTRODUCTION

Occupational safety and health can be approached in two main ways: through the elimination of unsafe conditions and the elimination of unsafe acts. In recent years, the appropriate focus of business and industry has been the elimination or reduction of hazards; that is, the emphasis has been on unsafe conditions. The elimination of unsafe acts is the other vital aspect of job safety and health, and one which must not be ignored. The main way of controlling unsafe acts is through proper employee training.

Employee training is mandated throughout the OSHAct; for that reason alone business and industry has become involved in it. However, the most enlightened companies and individual supervisors have long seen training as a key factor in the reduction of accidents and illnesses and consequently, as a primary way of holding down production costs. Work-related injuries and health problems are costly first of all in human terms, but their economic toll is also enormous. Worker's compensation and medical expenses may be only the tip of the iceberg. Other costs include lost productivity; lost buying power; welfare spending for survivors and the disabled; losses due to lowered employee morale, absenteeism, turnover, and safety-related strikes; liability, fire, and property insurance; equipment damage and materials waste.

Training in the proper performance of a job is time and money well spent, and the employer should regard it as investment rather than an expense.

This module was designed to provide the reader with a guide into the world of occupational safety and health training. OSHA training requirements are listed; training programs of OSHA and other safety organizations are described.

OBJECTIVES

Upon completion of this module, the student should be able to:

1. Identify the various certificates, stated competency levels, health hazard areas, secured areas, and designated employee representative areas that are required by 29 CFR Part 1910 OSHA Regulations. (Page 3)

2. Describe the organization of the OSHA Training Institute, including its planning and control, registrar's function and manager's responsibilities. (Page 9)
3. Discuss the selection of personnel to attend the Institute and the certification process for compliance officers. (Page 10)
4. State the nominating procedures and priorities for training state OSHA personnel. (Page 11)
5. Discuss the attendance at the OSHA Training Institute of non-OSHA private sector personnel, including who may attend, under what conditions, and which courses are available. (Page 12)
6. Summarize the educational programs available through the National Institute for Occupational Safety and Health. (Page 13)
7. Cite two areas to which NIOSH actively provides economic support, through grants and contracts. (Page 15)
8. Identify the locations, objectives, and purpose of the NIOSH Educational Resource Centers. (Page 15)
9. Describe the training services available from the National Safety Council. (Page 16)
10. Discuss the level and availablity of training from the following organizations: (Page 19)
    a. Mine Health and Safety Academy.
    b. National Fire Protection Association.
    c. State Safety Agencies.
11. Compare the types of academic programs in safety and health available at colleges, universities and technical schools. (Page 27)

OBJECTIVE 1: Identify the various certificates, stated competency levels, health hazard areas, secured areas, and designated employee representative areas that are required by 29 CFR Part 1910, OSHA Regulations.

Many standards promulgated by the Occupational Safety and Health Administration (OSHA) require the employer to train employees in the safety and health aspects of their jobs. Other OSHA standards make it the employer's responsibility to limit certain job assignments to employees who are "certified," "competent," or "qualified." Within many standards, the OSHAct is somewhat vague about exactly what level of expertise, either demonstrated or learned, qualifies an employee to be designated by the employer as certified, competent, or qualified. However, special training, in or out of the workplace, is usually required to meet the necessary level of competence. As a result of training, the employee should be capable of recognizing and evaluating exposures to hazardous substances or to other unsafe conditions in a given area and capable of specifying the necessary protection and precautions to be taken to ensure personnel safety. Specific competency levels are required for many different occupational areas. These requirements reflect OSHA's belief that training is an essential part of every employer's program for protecting workers from accidents and illnesses.

The length and complexity of the OSHA standards make it extremely difficult to find all the references to training. So, as a help to employers, safety and health professionals, and employees who want or need to know, OSHA's training-related requirements have been collected and listed in this paper.

Employers should keep an accurate record of all safety and health related training provided to employees. Records can provide evidence of the employer's good faith and compliance with OSHA standards. Documentation can also supply an answer to one of the first questions an accident investigator will ask: "Was the injured employee trained to do the job?"

Many portions of the OSHAct standards that involve training requirements may be applicable to a single industrial situation or job. For example, an employer introduces a new chemical additive into a dye manufacturing operation to improve the dye's performance characteristics. The new chemical additive contains 10% 4-Nitrobyphenyl, and OSHA-regulated carcinogen. Each potentially exposed employee must undergo medical testing as required in 1910.1003. An area around the dye manufacturing operation downstream of where the additive is introduced must be SECURED by limiting access to this secured area to only DESIGNATED AUTHORIZED EMPLOYEES who have had appropriate medical exams and proper hazard training. The employer must immediately proceed with the industrial hygiene atmospheric testing to determine the employee exposure to 4-Nitrobyphenyl during routine operations. The necessity of installing engineering controls is primarily dependent upon this measured concentration. As an interim measure the employer supplies the employees within the regulated area with the appropriate NIOSH-approved respirators. As a result, the employer also must comply with the 1910.134 section concerning safe respirator use. He/she also must designate a COMPETENT person to train the employees in correct respirator use.

The following is a listing of the general industry standards that include some form of training requirements. It is suggested that this section be used as a guide to further study within the specific subpart of the referenced standard of Part 1910 of Title 29, Code of Federal Regulations. Additional training requirements may appear in certain other standards (ANSI, NFPA, etc.) adopted by reference in Part 1910 and therefore mandatory.

MANLIFTS 1910.68

Inspected by a competent designated person.

VENTILATION 1910.94

Employee training required in open surface tank operations.
Respirators to be selected by competent industrial hygienist.
User training required.
In emergencies, trained standby employees to be used.

IONIZING RADIATION 1910.96

All personnel instructed.

HYDROGEN 1910.103

A qualified person attending while unloading.

FLAMMABLE AND COMBUSTIBLE LIQUIDS 1910.106

Emergency instruction should be posted.

Operators thoroughly trained in emergency procedures.

EXPLOSIVES AND BLASTING AGENTS 1910.109

Fire extinguishers examined periodically by a competent person.

Driver trained in hazards and safe operation.

Qualified person evaluates all bulk delivery and mixing vehicle systems.

Warehouse under supervision of a competent person.

STORAGE AND HANDLING OF LIQUIFIED PETROLEUM GASES 1910.1110

Proper training of operating and standard watch service personnel.

Dispensing of LP-Gas performed by a competent attendant.

STORAGE AND HANDLING OF ANHYDROUS AMMONIA 1910.111

Safe condition certification document signed by a registered professional engineer or equivalent.

Proper training of operation personnel.

RESPIRATORY PROTECTION 1910.134

Employee responsibility for proper use.

Proper training of users and supervisors by competent persons.

Training to include fitting instructions with demonstrations as well as written procedures.

TEMPORARY LABOR CAMPS 1910.142

Trained first aid person accessible.

SPECIFICATIONS FOR ACCIDENT PREVENTION SIGNS AND TAGS 1910.145

Proper employee instruction.

MEDICAL SERVICES AND FIRST AID 1910.151

Trained first aider present in the absence of an infirmary, clinic or hospital in the near proximity.

FIXED DRY CHEMICAL EXTINGUISHING SYSTEMS 1910.160

Inspected by a competent inspector and personnel.

CARBON DIOXIDE EXTINGUISHING SYSTEMS 1910.161

Proper employee instruction in system utilization as well as toxic hazards.

Inspected by a competent engineer or inspector.

Maintained by competent personnel.

LOCAL FIRE ALARM SIGNALING SYSTEMS 1910.163

Maintained by qualified personnel.

SAFETY RELIEF DEVICES FOR CARGO AND PORTABLE TANKS STORING COMPRESSED GASES 1910.168

Maintained by qualified personnel.

POWERED INDUSTRIAL TRUCKS 1910.178

Proper training for authorized operators.

OVERHEAD AND GANTRY CRANES 1910.179

Operators must be qualified and designated.

When two or more cranes are used to lift a load, one qualified, responsible person shall be in charge.

Operators trained in fire extinguisher use.

CRAWLER LOCOMOTIVE AND TRUCK CRANES 1910.180

Operators must be qualified and designated.

Operators trained in fire extinguisher use.

DERRICKS 1910.181

Operators must be qualified and designated.

Operators trained in fire extinguisher use.

SLINGS 1910.184

Inspected by a competent person designated by employer.

WOODWORKING MACHINERY REQUIREMENTS 1910.213

Maintenance work performed only by persons of demonstrated skill.

MECHANICAL POWER PRESSES 1910.217

Employer must ensure the continuing competence of personnel inspecting, maintaining or modifying presses.

Provide proper training for operators.

FORGING MACHINES 1910.218

Inspection and maintenance personnel training.

WELDING, CUTTING AND BRAZING 1910.252

Proper instruction for qualified arc welders.

Repairs made and maintenance done only by qualified personnel.

Installation only by a qualified electrician.

Employees trained in first aid on each shift.

PULP, PAPER AND PAPERBOARD MILLS 1910.261

Adequate operator training in use, and emergency respirator training for operators who may be exposed to chlorine gas.

LAUNDRY MACHINERY AND OPERATIONS 1910.264

Proper employee safety training by bulletins, printed rules and verbal instructions.

SAWMILLS 1910.265

Lift trucks operated only by trained and authorized operators.

PULPWOOD LOGGING 1910.266

Chain saw and other equipment operator instruction.

Only designated signalmen shall be used when necessary.

Only trained and experienced personnel handling explosives.

Fellers must be instructed to plan and clear retreat path as necessary.

TELECOMMUNICATIONS 1910.268

Written description of safety training program and training records maintained.

All inspection and checks conducted by a competent person.

Proper employee training for derrick truck, line clearing, manhole and street opening operations.

Only qualified employees to work near electrical hazards.

QUALIFICATIONS OF DIVE TEAM 1910.410

Each dive team member properly experienced or trained to perform assigned tasks with a designated person-in-charge.

CARCINOGENS — Each of the following carcinogens has a unique set of training program requirements that may include some or all of these general requirements: (consult the specific carcinogen standard for exact requirements).

Nature of the carcinogenic hazard, including local and systemic toxicity.

Nature of the operation.

Purposes for and application of the medical surveillance program.

Purposes for and application of decontamination practices.

Purposes for and application of specific first aid procedures and practices.

Purposes for and significance of emergency practice and procedures.

Employee's specific role in emergency procedures.

Recognition and evaluation of hazardous conditions and situations.

Respiratory protective devices.

Engineering control familiarity.

Regulated areas with limited access.

Initial and annual retraining for employees.

4-Nitrobyphenyl 1910.1003
Alpha-naphthylamine 1910.1004
Methyl Chloromethyl Ether 1910.1006
3,3'-Dichloro-benzidine 1910.1007
Bis-chloromethyl Ether 1910.1008
Beta-naphthlamine 1910.1009
Benzidine 1910.1010
4-Aminodiphenyl 1910.1011
Ethyleneimine 1910.1012
Beta-propiolactone 1910.1013
2-Acetylaminofluorene 1910.1014
4-Dimethylaminoazobenzene 1910.1015
N-Nitroso-dimethylamine 1910.1016
Vinyl Chloride 1910.1017
Inorganic Arsenic 1910.1018
Lead 1910.1025
Benzene 1910.1028
Coke Oven Emissions 1910.1029
Cotton Dust 1910.1043
1,2-Dibromo-3-chloropropane 1910.1044
Acrylonitrile 1910.1045
Exposure to Cotton Dust in Cotton Gins 1910.1046

ACTIVITY 1:*

1. Specify two areas or jobs that require some type of stated competency levels for operators.
   a. _____
   b. _____
2. State one of the first questions asked by accident investigators? _____

OBJECTIVE 2: Describe the organization of the OSHA Training Institute, including its planning and control, registrar's function and manager's responsibilities.

OSHA maintains a full time training institute in Des Plaines, Illinois for the purpose of educating federal and state compliance officers, as well as providing limited training to industrial safety representatives. The control of the institute is under the National Office of Training, Education and Consultation of Federal Agency Programs. The day-to-day activities of the institute are under the direction of the OSHA Training Institute Manager. The Training Institute's schedule is drawn up during June or July and dissiminated to all regional OSHA offices. The schedule includes the curriculum for the fiscal year beginning October 1 and ending September 30.

The function of the Training Institute's Registrar is to register students whose names are submitted by any of the Regional Training Officers who are located in one of the 10 regions. Since the Institute also trains private personnel, names can be submitted either from individuals in the private sector or through the state or federal agency coordinators. Registration for each course is limited due to space and equipment constraints. A laboratory course involving hands-on equipment training obviously must have fewer students than a general lecture course.

The Institute's manager has the responsibility of overseeing the actions of the program area leaders. The program area leaders set up the courses,

*Answers to Activities appear on page 35.

schedule the instructors, and handle the administration of their courses.

ACTIVITY 2:

Name the two key positions within the OSHA Safety Training Institute.

1. _____
2. _____

OBJECTIVE 3: Discuss the selection of personnel to attend the Institute and the certification process for compliance officers.

The certification of compliance safety and health officers (CSHO's) is performed by the Local Area Directors. It is based upon the CSHO's demonstrated competence to make solo inspections. The Training Institute provides courses that will enable the compliance officer to make workplace inspections. The beginning CSHO is required to take three courses, the first of which is the compliance course. For industrial nygienists, this course lasts three weeks. For safety officers, the course is two weeks long. The advanced compliance course for industrial hygienists (two weeks) is usually taken after the officer has accompanied other officers on actual inspections. The advanced course for safety officers is three weeks long. Following this, there is a crossover with industrial hygiene concepts and vice versa. At the completion of these three courses, phase one of the CSHO's training is complete.

The CSHO's then begin taking a number of more specialized courses. Selection of these courses is made by the area director based upon the educational or work background of the CSHO, the areas of greatest hazard in the region, and the need to complement the training of other compliance officers in the area office. The following is a list of the basic and specialty courses available through the Institute for both Industrial Hygienists (IH) and Safety Officer (S):

COURSE	COURSE LENGTH (Weeks)	
	Industrial Hygiene	Safety
Initial Compliance	3	2
Advanced Compliance	2	3
Crossover Training	2	2
Toxicology	1-1/2	
Noise	2	
Respirators	1-1/2	
Ionizing Radiation	2	
Nonionizing Radiation	1-1/2	
Ventilation	2	
Machine Guarding		2
Electrical Hazards		2
Hazardous Materials		2
Accident Investigation		1-1/2
Civil Law		1-1/2
Communications and Human Relations		1-1/2

ACTIVITY 3:

Give three factors that influences the area director in the selection of courses for CSHOs.

1. _____
2. _____
3. _____

OBJECTIVE 4: State the nominating procedures and priorities for training state OSHA personnel.

While the first priority of the Institute is to train federal compliance officers, the second priority is to train state compliance officers. The state compliance officers are employed by individual state governments that are working under an approved state agreement with federal OSHA. The third priority is the training of personnel from other federal agencies.

The state equivalent of the federal OSHA area directors are the nominating officers who nominate the state personnel to attend the OSHA Training

Institute on a need basis. State OSHA personnel may attend any or all of the offered courses on a space-available prioritized basis. The same holds true for trainees from other federal agencies.

ACTIVITY 4:

Name three priorities for government personnel to attend the OSHA Safety Training Institute.

1. _____
2. _____
3. _____

OBJECTIVE 5:: Discuss the attendance at the OSHA Training Institute of non-OSHA private sector personnel, including who may attend, under what conditions, and which courses are available.

The OSHA Training Institute also accepts trainees from the private sector, usually with safety and health related instructors jobs, on a lowest priority, first-come/first-registered basis. The following groups in particular are encouraged to enroll:

Employer Representatives
Trade Associations
Employee Organizations
Insurance Companies
Local Safety Councils
Local Chapters of Professional Safety and Health Societies

At present, only two courses are available to private sector students. They are Course #500-2 "A Guide to Voluntary Compliance for Instructors" and Course #400-2 "Instructors Course in Construction Safety." Both of these courses are 40 hour, one week courses with no registration fee. Attendance at each of these courses qualifies the attendee for 4.0 Continuing Education Units (CEUs).

ACTIVITY 5:

Name the two courses offered to private sector students.

1. _____

2. _____

OBJECTIVE 6: Summarize the educational programs available through the National Institute for Occupational Safety and Health.

The National Institute for Occupational Safety and Health (NIOSH) has taken a leadership role in promoting occupational safety and health training throughout the country. They have done exhaustive research to record and catalogue safety and health curricula at each of the major colleges and universities that offer formal education in the field. In 1979 NIOSH published a "Directory of Academic Programs in Occupational Safety and Health." This booklet was intended to help students, educators, guidance counselors, professional societies, employers, and employees who need basic information concerning the relative location, programs, curricula, and pricing of these colleges and universities.

Perhaps the largest and most important contribution that NIOSH has made in the occupational health training area is by creating and presenting many courses directly and by cosponsoring other courses through grants to its Educational Resource Centers. Most of these training courses are, in fact, professional development seminars that teach the attendees the latest state-of-the-art knowledge in scientific and sometimes highly technical subjects related to occupational health or safety.

The following courses are taught directly by NIOSH in one of four locations: CES, NIOSH, and R&R Associates in Cincinnati, Ohio and Temple University in Philadelphia, Pennsylvania:

OCCUPATIONAL HEALTH NURSING

Occupational Health Nursing: Basic Theory and Update.

INDUSTRIAL HYGIENE

Introduction to Occupational Health.

Recognition of Occupational Health Hazards.

Applied Industrial Hygiene.

Industrial Hygiene Measurements.

Industrial Hygiene Engineering.

Industrial Hygiene Sampling, Decision Making, Monitoring and Recordkeeping: Sampling Strategies.

Industrial Hygiene Sampling, Decision Making, Monitoring and Recordkeeping: Sampling Methods.

Industrial Hygiene Sampling, Decision Making, Monitoring and Recordkeeping: Administering a Sampling Program.

Evaluation and Treatment of Outlier Data.

Industrial Noise.

Sampling and Evaluating Airborne Asbestos Dust.

Industrial Hygiene Laboratory Quality Control.

Industrial Ventilation.

How to Write a Laboratory Quality Control Manual.

OCCUPATIONAL SAFETY

Recognition of Accident Potential in the Workplace Due to Physical Environmental Factors.

Recognition of Accident Potential in the Workplace Due to Human Factors.

Nonionizing Radiation.

Ionizing Radiation.

Occupational Respiratory Protection.

ACTIVITY 6:

What are the three broad catagories of courses that NIOSH teaches directly?

1. _____
2. _____
3. _____

OBJECTIVE 7: Cite two areas to which NIOSH actively provides economic support, through grants and contracts.

NIOSH is one of the major sources of funding for research grants in the occupational health/industrial hygiene area. Toxicological research is funded to study both the short (acute) and the long-term (chronic) effects of certain chemicals or hazardous materials upon animals and sometimes man. The animal toxicity data is then correlated to what toxicity might be expected in man for that concentration of the chemical or hazardous material.

NIOSH also provides Educational Training Research Grants to various educational institutions. These grant monies are to be utilized in the development of new courses for occupational health and industrial hygiene researchers. These courses are designed to give researchers a basic education in the principles behind good scientific research, i.e.: epidemiology, statistics, toxicology, etc.

Unfortunately, many federal programs are currently being cut back to reduce government spending. At this writing it appears that although NIOSH's occupational health/industrial hygiene research grants will continue mostly intact, the educational training research grants mentioned above and the Educational Resource Centers described in the next objective may be terminated completely. NIOSH should be consulted for an accurate accounting of currently ongoing programs.

ACTIVITY 7:

Name two types of NIOSH grant programs:

1. _____
2. _____

OBJECTIVE 8: Identify the locations, objectives and purpose of the NIOSH Educational Resource Centers.

The NIOSH Educational Resource Centers (ERCs) consist of 10 universities that have been chosen to receive limited grants to initially underwrite and

help them develop new professional development courses in the occupational health and safety field. As can be seen from the list of ERCs below, they are spread regionally throughout the United States. Of course, the intention is to make these courses more accessible to local safety and health professionals and businessmen.

The budget funds that support the NIOSH Educational Resource Centers are, at the time of this writing, under intense congressional scrutiny and are scheduled to be eliminated. If this happens, many of the ERC grant universities may well terminate some or all of their course presentations.

1. City University of New York, Mount Sinai School of Medicine
2. Harvard University
3. Johns Hopkins University
4. University of Arizona
5. University of California, Irvine
6. University of Cincinnati
7. University of Illinois at the Medical Center
8. University of Minnesota
9. University of North Carolina at Chapel Hill
10. University of Texas School of Public Health

ACTIVITY 8:

Why did NIOSH create the ERC grant program?

_____

_____

_____

OBJECTIVE 9: Describe the training services available from the National Safety Council.

The National Safety Council is a private, non-governmental, not-for-profit public service organization that was organized in 1913 and chartered by Congress in 1953 in recognition of its leadership in the nation's voluntary safety movement. The mission of the Council is to determine and evaluate

methods and procedures that prevent accidents, mitigate injury and economic loss resulting from accidents, and provide leadership to expedite the adoption and use of those methods and procedures that best serve the public interest. Through its annual meeting in Chicago each October and through other meetings, the Council serves as an international clearinghouse for safety programs and information as well as a neutral forum where diverse interests can come together to develop solutions to safety problems. This national organization distributes many of its products and services to the field through a national network of more than 120 State and Local Safety Councils.

A large variety of products and services are marketed by the Council to member companies and other organizations as well as to the general public. The National Safety Council is a good source for safety and health videotape, film, and slide programs designed to be utilized by employees or supervisors as safety training aids. Many of these programs come with instructor materials, student workbooks, and other useful training aids.

The Council is an even better source of professional development training in occupational safety and health. Within its Chicago offices is a well-staffed and apportioned Safety Training Institute that operates continuously offering public and private safety and health courses. The Institute trains over 1200 students per year. The content of these courses ranges from fundamental concepts to timely topical issues related to safety and health. Below is a list of the four one/half day courses routinely offered by the Safety Training Institute. Many of these courses are also periodically offered regionally through state or local safety councils.

Fundamentals of Occupational Safety
Safety Training Methods
Safety Management Techniques
Practical Aspects of Industrial Hygiene
Fundamentals of Hospital Safety
Fundamentals of Accident Prevention for Public Utilities
Safety in Chemical Operations
Laboratory Safety
Motor Fleet Accident Investigation Workshops

The Council also offers excellent professional development seminars of one or two day length as an adjunct to their October National "Congress" meeting in Chicago, Illinois or other regional "Congresses" such as the Eastern Regional Congress. These seminars tend to be more specific than the half-day courses, offering the most up-to-date topical training for practicing safety and health professionals. The following are examples of several such topical seminars:

Prevention and Rehabilitation of Occupational Back Injuries
Hazardous Materials Handling and Disposal
Product Safety
Occupational Health Workshops

Another valuable service that the Council provides is unlimited telephone consultation with highly qualified and knowledgable speicialists in most technical safety and health fields. In most cases, representatives of member companies or organizations can obtain immediate answers to their safety and health questions. If a more extensive literature search is needed, that too can be obtained through the Council's extensive library services. Even onsite personalized program consultation is available to companies or other organizations who are just starting, revamping or auditing their safety and health programs.

ACTIVITY 9:

Name five services and products available through the National Safety Council.

1. _____
2. _____
3. _____
4. _____
5. _____

OBJECTIVE 10: Discuss the level and availability of training from the following organizations:

Mine Health and Safety Academy
National Fire Protection Association
State Safety Agencies

The National Mine Health and Safety Academy in Beckley, West Virginia is operated under the Mine Safety and Health Administration. This academy was established to provide effective training programs in mine health and safety to persons appointed to inspect mines, render technical assistance, and train the nation's miners. The Academy is open only to federal and state government employees, mining industry personnel and some cooperative education college students. While not a degree-granting institution, the Academy does offer Continuing Education Units which can be accumulated for credit. The following is a list of the available courses and approximate durations.

MINE INSPECTOR TRAINEE PROGRAM

- Underground Coal (13 weeks)
- Surface Coal (9 weeks)
- Metal and Nonmetal (12 weeks)

COLLEGE COOPERATIVE PROGRAM (28 weeks)

- Applied Industrial Hygiene
- Basic Course for Special Investigators
- Citations and Orders/Effective Writing/Accident Investigation/Part 50
- Emergency Medical Technician
- Fire Safety/Explosives or Fire Safety/Mine Emergency Procedures
- Ground Control/Tailings Impoundments
- Hoisting/Haulage
- Industrial Hygiene for Safety Professionals
- Industrial Hygiene: Mill Hazards
- Industrial Hygiene: Sampling Techniques
- Mine Machinery/Mine Electricity
- Permissibility
- Program in Accident Reduction
- Radiation Safety in Mining

Retraining for Electrical Specialists
Safety Management
System Safety Engineering
Ventilation

SHORT COURSES (Course lengths range from 5 hours to 10 days)

Accident Prevention Techniques
Accident Potential Recognition
Achieving Career Potential
Achieving Personal and Organization Potential
Alcoholism as an Industrial Health and Safety Problem
Anatomy and Physiology for Safety and Health Personnel
Cardiopulmonary Resuscitation (CPR) – Heartsaver
Cardiopulmonary Resuscitation (CPR) – Basic Rescuer
Cardiopulmonary Resuscitation (CPR) – Instructor
Coal Mine Inspection Fundamentals
Coal Preparation
Communications, Interpersonal
Computer Time-Sharing and Basic Programming
Effective Writing
Electrical Retraining
Emergency Medical Technician
Emergency Procedures in the Mines
Employee Assistance Programming
Engineering Fundamentals
Equal Employment Opportunity (EEO) Workshop for Supervisors
First Responder
Gas Detecting Devices
Hazardous Materials
Hazards in Mining
Hoisting I
Hoisting II
Hoisting III
Hoisting IV
Instructor Training

Instructor Training Workshop
Introduction to Mining
Management Fundamentals
Noise and Dust Problems in the Mining Industry
Noise Surveys in Coal Mines
Nuclear Gage Safety
Occupational Health Hazards in the Mining Industry
Operations Research
Problem Solving and Decision-Making
Psychosocial Stress
Recognizing Alcohol Abuse
Respirable Coal Dust Sampling
Roof and Rib Control for Specialists
Safety Program Analysis
Special Investigator's Course (Basic)
Technician Training
The Radiation Hazard in Mining
Time Management
Toxic Chemicals in the Mine Environment
Tunneling Safety
Ventilation — Coal Mining

The National Fire Protection Association (NFPA) located in Boston, Massachusetts develops, publishes and disseminates standards intended to minimize the possibility and effects of fires and explosions. They also compile annual statistics on causes and occupancies of fires along with providing field services by specialists on electricity, flammable liquids and gases and marine problems.

In the safety training area, NFPA conducts fire safety education programs for the general public. NFPA sponsors seminars routinely on the following as well as other timely topics:

The Life Safety Code
The National Electrical Code
Industrial Fire Protection
Hazardous Materials Transportation Emergencies

State Safety Agencies vary widely concerning the various seminars and other educational opportunities that they offer. Some are large local organizations which may or may not be partially funded by the state government, offering excellent organized programs or seminars. Perhaps the most renowned service that is available in several states is the state OSHA financed on-site consultative inspection service. In the states which have such a program, any employer may request an inspection of his/her facility by an independent consultant firm under contract to the state OSHA. The consultant will report the safety deficiencies discovered during the inspection to the employer. Only when the consultant finds an "imminent danger" or a "serious" violation does he or she report the violation to the state OSHA compliance officers for their inspection.

A large number of privately funded organizations operate on a state or local level to serve the specific safety and health needs of their state or community. The majority of these private safety agencies are funded by profits from short courses or professional development courses on safety and health topics of local concern.

The following is a partial listing of the state and local safety organizations that offer such training.

ALABAMA

South Alabama Chapter, NSC, Mobil, AL

ARKANSAS

City Safety Commission of Little Rock, Little Rock, AR

ARIZONA

Arizona Safety Association, Phoenix, AZ

CALIFORNIA

National Safety Council, Orange County/Long Beach, CA

Greater Los Angeles Chapter, National Safety Council, Los Angeles, CA

Eastbay Chapter, National Safety Council, Oakland, CA

San Mateo County Safety Council, San Mateo, CA

Sacramento Safety Council, Inc., Sacramento, CA

San Diego County Safety Council, San Diego, CA

Central Counties Safety Council of California, Santa Clara, CA

San Joaquin County Safety Council, Stockton, CA

COLORADO

Colorado Safety Association, Denver, CO

FLORIDA

National Safety Council, Pinellas County Chapter, Clearwater, FL
National Safety Council, Broward Chapter, Fort Lauderdale, FL
Southwest Florida Safety Council, Inc., Fort Myers, FL
Florida Treasure Coast Safety Council, Inc., Fort Pierce, FL
Alachua County Chapter, National Safety Council, Gainesville, FL
Northeast Florida Safety Council, Jacksonville, FL
Dade County Citizens Safety Council, Miami, FL
Central Florida Safety Council, Inc., Orlando, FL
Northwest Florida Safety Council, Pensacola, FL
Tampa Area Safety Council, Tallahassee, FL
Big Bend Safety Council, Tallahassee, FL
Safety Council of Palm Beach County Inc., West Palm Beach, FL

GEORGIA

Georgia Safety Council, Inc., Atlanta, GA

HAWAII

Hawaii Safety and Health Council, Honolulu, HW

IDAHO

Idaho Safety Council, Inc., Boise, ID

ILLINOIS

Greater Chicago Safety Council, Chicago, IL
Lake County Safety Commission, Waukegan, IL
Quincy Area Safety Council, Quincy, IL

IOWA

Safety Association of Iowa, Des Moines, IA

KENTUCKY

Ohio River Valley Safety Council, Louisville, KY

LOUISIANA

Safety Council of Greater Baton Rouge, Baton Rouge, LA

Acadiana Safety Association, Lafayette, LA

Calcasieu Area Safety Council, Lake Charles, LA

Metropolitan Safety Council of the New Orleans Area, New Orleans, LA

MAINE

Maine Safety Council, East Poland, ME

MARYLAND

Safety Council of Maryland, Baltimore, MD

MASSACHUSETTS

Massachusetts Safety Council, Inc., Boston, MA

Safety Council of Western Massachusetts, Springfield, MA

Central Massachusetts Chapter, NSC, Worchester, MA

MICHIGAN

Traffic Improvement Association of Oakland County, Bloomfield Hills, MI

Traffic Safety Association of Macomb County

Safety Council for Southeast Michigan, Southfield, MI

Kalamazoo Area Safety Council, Kalamazoo, MI

Lansing Area Safety Council, Lansing, MI

Greater Saginaw Safety Council, Saginaw, MI

MINNESOTA

Minnesota Safety Council, Inc., St. Paul, MN

MISSOURI

Greater Kansas City Area Safety Council, Kansas City, MO

Saint Joseph Safety Council, Saint Joseph, MO

Missouri Safety Council, Jefferson City, MO

Safety Council of Greater St. Louis, St. Louis, MO

MONTANA

Montana Safety Council, Helena, MT

NEBRASKA

Omaha Safety Council, Inc., Omaha, NE

Safety Council of Nebraska, Lincoln, NE

NEVADA

Nevada Safety Council, Las Vegas, NV

NEW HAMPSHIRE

New Hampshire Safety Council, Inc., Concord, NH

NEW JERSEY

New Jersey State Safety Council, Newark, NJ

NEW YORK

Greater New York Safety Council, New York, NY

Rochester Safety Council, Rochester Area Chamber of Commerce, Rochester, NY

Long Island Safety Council, Smithtown, NY

Safety Council of Central New York, Syracuse, NY

State Traffic Safety Council, New York, NY

NORTH CAROLINA

Citizens Safety Association of Charlotte-Mecklenburg, Charlotte, NC

NORTH DAKOTA

North Dakota Safety Council, Bismark, ND

OHIO

Greater Cleveland Safety Council, Cleveland, OH

Safety Council of the Columbus Area Chamber of Commerce, Columbus, OH

Dayton/Miami Valley Safety Council, Dayton, OH

Greater Hamilton Safety Council, Hamilton, OH

Safety Council of Middletown Area, Middletown, OH

Toledo-Lucas County Safety Council, Toledo, OH

Safety Council of Northeastern Ohio, Youngstown, OH

OKLAHOMA

Tulsa Area Safety Council, Tulsa, OK

Oklahoma Safety Council, Oklahoma City, OK

OREGON

Portland Traffic Safety Commission, Portland, OR

Washington County Traffic Safety Commission, Hillsboro, OR

PENNSYLVANIA

Lehigh Valley Chapter, National Safety Council, Bethlehem, PA

Greater Erie Pennsylvania Safety Council, Erie, PA

Montgomery County Safety Council, Norristown, PA

Greater Philadelphia Chapter, National Safety Council, Philadelphia, PA

Western Pennsylvania Safety Council, Pittsburgh, PA

SOUTH CAROLINA

Greater Charlestown Safety Council, Charlestown, SC

South Carolina Safety Council, Cayce, SC

SOUTH DAKOTA

South Dakota Safety Council, Sioux Falls, SD

West River Division of the South Dakota Safety Council, Rapid City, SD

TENNESSEE

Chattanooga Area Safety Council, Chattanooga, TN

Kingsport Area Safety Council, Kingsport, TN

Memphis Area Safety Council, Memphis, TN

TEXAS

Safety Council of Fort Worth and Tarrant County, Fort Worth, TX

International Safety Academy, Houston, TX

Greater San Antonio Safety Council, San Antonio, TX

Texas Safety Association, Inc., Austin, TX

Safety Council of Greater Houston, Houston, TX

UTAH

Utah Safety Council, Salt Lake City, UT

WASHINGTON

Safety Training and Research Association of Washington, Seattle, WA

Tacoma-Pierce County Safety Council, Tacoma, WA

WEST VIRGINIA

West Virginia Safety Council, Charlestown, WV

WISCONSIN

Madison Area Safety Council, Madison, WI
Milwaukee Safety Commission, Milwaukee, WI
Wisconsin Council of Safety, Milwaukee, WI

WYOMING

Wyoming Safety Council, Cheyenne, WY

ACTIVITY 10:

With the exception of MSHA inspector programs, what is the underlying purpose behind these agencies?

_____

_____

_____

OBJECTIVE 11: Compare the types of academic programs in safety and health available at colleges, universities, and technical schools.

Within the safety and health field, there are four primary entry level positions in the typical company with an ongoing safety and health program; safety technician, safety engineer, industrial hygiene technician, and industrial hygienist. The safety technician usually works under the direct supervision of the safety engineer performing routine safety inspections throughout a single facility. Likewise, the industrial hygiene technician usually works under the direct supervision of the industrial hygienist performing routine atmospheric sampling and contaminant monitoring programs within a single or multiple facilities. Although an untrained employee may be trained on the job to be one of the above technicians, an appropriate one or two year associate degree or certificate of program completion is usually required from job applicants.

To become a safety engineer or an industrial hygienist requires considerably more formal training. Typically, this training consists of an appropriate

bachelors degree and often includes a masters degree or equivalent experience. The masters degree is almost a requirement for the industrial hygienist, whose profession is somewhat more technical and specialized than that of the safety engineer. The safety engineer and industrial hygienist are both placed in positions of relative authority and are expected to communicate daily with top management and employee representatives. Recognition, evaluation, and control recommendations for occupational safety and health hazards are their responsibilities.

The National Institute of Occupational Safety and Health (NIOSH) has compiled an extremely useful directory of academic programs currently available for obtaining formalized training in occupational safety and health. A listing of the colleges and universities offering such programs is given here, but it is suggested that prospective students consult the NIOSH publication No. 79-126 or the college or university of interest for further information.

The following schools offer Associate Degree and/or Certificate Programs in Occupational Safety:

California State University, Long Beach
Chattanooga State Technical Community College
Cincinnati Technical College
City University of New York, College of Staten Island
Clark County Community College
Cogswell College
Detroit Institute of Technology
Madonna College
Southern Technical Institute
Tulsa Junior College
University of Cincinnati, University College, Clifton Campus
University of Idaho, Idaho National Engineering Laboratory (INEL) Education Program
Waukesha County Technical Institute
Western University

The following schools offer Baccalaureate and Advanced Degrees in Occupational Safety:

Central Missouri State University
Cogswell College

Colorado State University
Detroit Institute of Technology
Eastern Washington University
Georgia Institute of Technology
Harvard University
Illinois State University
Indiana University of Pennsylvania
Louisiana State University
Madonna College
Memphis State University
Middle Tennessee State University
Millersville State College
Milwaukee School of Engineering
New York University
North Carolina State University
Northern Illinois University
Oklahoma State University
Southern Illinois University
Texas A&M University
University of Arizona
University of Cincinnati
University of Dubuque
University of Illinois at the Medical Center
University of Minnesota, Duluth
University of Southern California
University of Wisconsin-Platteville
University of Wisconsin-Stout
University of Wisconsin-Whitewater
West Virginia University

The following schools offer Associate Degree and/or Certificate Programs in Industrial Hygiene:

Hudson Valley Community College
Western Wisconsin Technical Institute

The following schools offer Bacalaureate and Advanced Degrees in Industrial Hygiene:

Arizona State University
Bowling Green State University
California State University, Hayward
California State University, Northridge
City University of New York, Baruch College
City University of New York, Hunter College
City University of New York, Wagner College
City University of New York, York College
Colorado State University
Columbia University
Drexel University
East Central Oklahoma State University
East Tennessee State University
George Washington University
Harvard University
Illinois State University
Johns Hopkins University
Kansas State University
Mississippi Valley State University
New York University Medical Center
Oakland University
Pennsylvania State University, Capitol Campus
Quinnipiac College
Rensselaer Polytechnic Institute
Rutgers, the State University of New Jersey
Southern Illinois University
Texas A&M University
University of Arizona
University of California, Berkeley
University of California, Irvine
University of Cincinnati
University of Florida
University of Hawaii

University of Illinois at the Medical Center
University of Iowa
University of Kansas
University of Lowell
University of Massachusetts at Amherst
University of Michigan
University of Minnesota
University of North Carolina at Chapel Hill
University of Oklahoma Health Sciences Center
University of Pittsburgh
University of Rochester
University of Southern California
University of Tennessee, Knoxville
University of Texas, School of Public Health
University of Toronto
University of Utah
University of Wisconsin-Parkside
Utah State University
Wayne State University
West Virginia University
Western Kentucky University

The following schools offer Associate Degrees and/or Certificate Programs in Occupational Safety and Health/Industrial Hygiene:

Araphoe Community College
Brevard Community College
Catonsville Community College
Chesterfield-Marlboro Technical College
Cleveland County Technical Institute
Delgado College
Ferris State College
Henry Ford Community College
Hillsborough Community College
Honolulu Community College, University of Hawaii
Housatonic Community College
Jefferson State Junior College

Marshall University
Midlands Technical College, Beltline Campus
Mount Hood Community College
Mount San Antonio College
North Shore Community College
Northeastern Christian Junior College
Northern Virginia Community College, Alexandria Campus
Orange Coast College
Rock Valley College
Rowan Technical Institute
Salem College
San Diego City College/San Diego Evening College
San Joaquin Delta College
Texas State Technical Institute, James Connally Campus
Thomas Nelson Community College
Triton College
University of New Haven
University of Toledo

The following schools offer Baccalaureate and Advanced Degrees in Occupational Safety and Health/Industrial Hygiene:

California State University, Fresno
California State University, Los Angeles
Central Washington University
Clemson University
Columbia University
East Carolina University
Ferris State College
Grand Valley State Colleges, Kirkhof College
Humber College
Indiana State University
Iowa Wesleyan College
Johns Hopkins University
Kansas State University
Lamar University

McNeese State University
Mercy College
Metropolitan State University
Montana College of Mineral Science and Technology
New Jersey Institute of Technology
North Carolina Agricultural and Technical State U.
Oregon State University
Our Lade of Holy Cross College
Purdue University
Saint Augustine's College
Salem College
Temple University
Texas A&M University
Texas Tech University
Tulane University
University of Arizona
University of Illinois at Urbana-Champaign
University of Miami
University of Michigan
University of New Haven
University of Rochester
University of Washington
University of Wisconsin-Madison
Utah State University
Wright State University

The following schools offer Programs in Occupational Health Nursing:

California State Univeristy, Fullerton
City College School of Nursing, College of the City of New York
Harvard University
Johns Hopkins University
Texas Woman's University
University of Arizona
University of California, San Francisco
University of Cincinnati

University of Illinois at the Medical Center
University of Minnesota
University of North Carolina at Chapel Hill
University of North Carolina at Greensboro
University of Utah
University of Washington
University of Wisconsin-Milwaukee

The following schools offer Programs in Occupational Medicine:

City University of New York, Mount Sinai School of Medicine
Duke University Medical Center
Harvard University
Johns Hopkins University
Mayo Graduate School of Medicine
St. Paul-Ramsey Hospital and Medical Center
University of Arizona
University of California, Irvine
University of Cincinnati
University of Illinois at the Medical Center
University of North Carolina at Chapel Hill
University of Texas School of Public Health
University of Utah
University of Washington

ACTIVITY 11:

Name five colleges or universities that offer formal training in four or more of the above catagories.

1. _____
2. _____
3. _____
4. _____
5. _____

REFERENCES

U.S. Department of Health, Education, and Welfare, NIOSH, DOTMD, Directory of Academic Programs in Occupational Safety and Health, January 1979 (DHEW Publication No. 79-126).

U.S. Department of Health and Human Services, NIOSH, DOTMD, NIOSH Schedule of Courses, 1980-81, (DHHS Publication No. 80-130).

U.S. Department of Labor, OSHA, Training Requirements in OSHA Standards, Revised November 1979.

U.S. Department of Labor, MSHA, National Mine Health and Safety Academy General Catalog, FV 1981.

ANSWERS TO ACTIVITIES

ACTIVITY 1

1. a. Storage and handling of Anhydrous Ammonia.
   b. Operating overhead or gantry cranes, (among others).
2. Was the injured employee trained to the job?

ACTIVITY 2

1. Safety Training Institute Manager.
2. Safety Training Institute Registrar.

ACTIVITY 3

1. Educational or work background.
2. Areas of greatest hazards in the region.
3. Specific area expertise needs in the area office.

ACTIVITY 4

1. Federal OSHA CSHOs.
2. State OSHA CSHOs.
3. Other federal agency personnel.

ACTIVITY 5

1. Voluntary compliance.
2. Construction safety.

ACTIVITY 6

1. Occupational health nursing.
2. Industrial hygiene.
3. Occupational safety.

ACTIVITY 7

1. Occupation health/industrial hygiene research grants.
2. Educational training research grants.

ACTIVITY 8

To initially underwrite and help to develop new professional seminar courses in the occupational health and safety field.

ACTIVITY 9

1. Safety and health oriented visual aids.
2. Professional development training courses.
3. Telephone safety and health consultation.
4. On-site safety and health program consultation.
5. Safety and health library services.

ACTIVITY 10

Training management, workers, and individuals to recognize, evaluate and control safety and health hazards to insure a more safe and healthful workplace, home or other environment.

ACTIVITY 11

1. Johns Hopkins University.
2. University of Arizona.
3. University of Cincinnati, University College, Clifton Campus.
4. Harvard University.
5. University of Illinois at the Medical Center.